Amendments to the Claims:

1. (Withdrawn) A method for increasing the perceived visual acuity between a high resolution video input device and a low resolution video output device, wherein the high resolution device inputs at least four times the number of pixels that are output by the low resolution output device, said method comprising the steps of:

inputting a high resolution video input as an array of pixels;

selecting a plurality of subsets of said input pixels, wherein said pixels that are selected to form said subsets are periodically altered;

processing said selected subsets to determine an output pixel value for each said selected subset; and

outputting each said processed output pixel value to a corresponding output pixel in said low resolution output device.

2. (Withdrawn) The method of claim 1 wherein said high resolution video input device is a video camera that has at least 10,000 pixels of resolution.

3. (Withdrawn) The method of claim 1 wherein said high resolution video input device outputs a video signal having at least 10,000 pixels of resolution.

4. (Withdrawn) The method of claim 1 wherein said low resolution video output device is a retinal prosthesis for stimulating neural pathways in a patient's retina.

5. (Withdrawn) The method of claim 1 wherein the step of periodically altering the selected pixels in each subset is done according to a fixed alteration pattern.

6. (Withdrawn) The method of claim 1 wherein the step of periodically altering the selected pixels in each subset is done according to a pseudo-random alteration pattern.

7. (Withdrawn) The method of claim 1 wherein the step of periodically altering the selected pixels in each subset is done in according to sensed eye movement.

8. (Withdrawn) The method of claim 1 wherein the step of periodically altering the select pixels in each subset is done in synchronization with a sensed eye movement signal.

9. (Withdrawn) The method of claim 1 additionally comprising the step of outputting a neural output signal to signal to the patient's brain that the selected pixels in each subset have been altered.

10. (Withdrawn) The method of claim 1 wherein the step of periodically altering the selected pixels in each subset is done according to a patient selectable input.

11. (Withdrawn) The method of claim 1 wherein the step of periodically altering the selected pixels in each subset additionally comprises altering the magnitude of the subset alteration according to a patient selectable input.

12. (Withdrawn) The method of claim 1 wherein the step of periodically altering the selected pixels in each subset additionally comprises altering the magnitude of the subset alteration according to data within at least one of said pixel subsets.

13. (Withdrawn) The method of claim 1 wherein the steps of selecting and processing are adjusted according to patient selectable inputs.

14. (Withdrawn) The method of claim 1 wherein said outputting step comprises periodically altering output pixel values to neighboring output pixels in said low resolution device, whereby a virtual output pixel may be perceived between physical locations of said neighboring output pixels.

15. (Withdrawn) The method of claim 1 wherein criteria for said processing said selected subsets step are periodically altered.

16. (Withdrawn) The method of claim 1 wherein criteria for said processing said selected subsets step are periodically altered according to patient selectable inputs.

17. (Withdrawn) The method of claim 1 wherein said processing step is done according to transformation filters.

18. (Withdrawn) The method of claim 17 wherein said transformation filters are selected from the set of object recognition filters, saccadic filters, image stabilization filters, histogram filers, contrast and brightness filters, edge enhancement filters, repositioning filters, image cropping filters, image zoom filters, image resizing filters, image subsetting filters, electrode stimulation filters, and motion detections filters.

19. (Withdrawn) The method of claim 1 wherein said processing step comprises varying the range of input pixel values.

20. (Withdrawn) The method of claim 19 wherein said varying step is done according to said array of pixels to perform an automatic gain control function.

21. (Withdrawn) The method of claim 1 wherein said inputting step comprises inputting an array of color pixels and said outputting step comprises outputting a monochromatic output pixel in response to the color pixels within the corresponding selected subset of input pixels.

22. (Withdrawn) The method of claim 1 wherein the aspect ratio of the input pixels differs from the aspect ratio of the output pixels and said selecting step includes selecting a subset of input pixels having an asymmetrical aspect ratio to compensate for the difference in input and output pixel aspect ratios.

23. (Withdrawn) The method of claim 1 additionally comprising the step of processing said high resolution input according to transformation filters wherein said transformation filters are selected from the set of object recognition filters, saccadic filters, image stabilization filters, histogram filers, contrast and brightness filters, edge enhancement filters, repositioning filters, image cropping filters, image zoom filters, image resizing filters, image subsetting filters, electrode stimulation filters, and motion detections filters.

24. (Original) An apparatus for increasing perceived visual acuity suitable for use in providing vision to a visually-impaired patient, said apparatus comprising:

a high resolution optical input device for receiving an optical signal and providing a video signal in response thereto;

a video processor for receiving said video signal as an array of input pixels, wherein said video processor selects subsets of said input pixels and processes said selected subsets to determine an output pixel value for each said selected subset and wherein said pixels that are selected to form said subsets are periodically altered;

a low resolution video output device for responding to an electrical signal to generate a pixelated image, said pixelated image having a resolution of no more than one fourth of the image resolution available from said high resolution optical input device; and

a display driver providing electrical signals for driving pixels in said low resolution video output device in response to said output pixel values from said video processor.

25. (Original) The apparatus of claim 24 wherein said high resolution video input device is a video camera that has at least 10,000 pixels of resolution.

26. (Original) The apparatus of claim 24 wherein said high resolution video input device outputs a video signal having at least 10,000 pixels of resolution.

27. (Original) The apparatus of claim 24 wherein said low resolution video output device is a retinal prosthesis for stimulating neural pathways in the patient's retina.

28. (Original) The apparatus of claim 24 wherein said video processor periodically alters the selected pixels in each subset according to a fixed alteration pattern.

29. (Original) The apparatus of claim 24 wherein said video processor periodically alters the selected pixels in each subset according to a pseudo-random alteration pattern.

30. (Original) The apparatus of claim 24 additionally comprising:

a eye movement sensor for sensing movement of a patient's eye to generate an eye movement signal; and wherein

said video processor periodically alters the selected pixels in each subset in synchronization with said sensed eye movement signal.

31. (Original) The apparatus of claim 24 additionally comprising:

a eye movement sensor for sensing movement of a patient's eye; and wherein

said video processor periodically alters the selected pixels in each subset according to said sensed eye movement.

32. (Original) The apparatus of claim 31 wherein said eye movement sensor comprises a video detection device for sensing eye movement.

33. (Original) The apparatus of claim 31 wherein said eye movement sensor comprises an infrared detection device for sensing eye movement.

34. (Original) The apparatus of claim 31 wherein said eye movement sensor senses muscular movements corresponding to movements of the patient's eye.

35. (Original) The apparatus of claim 31 wherein said eye movement sensor senses neural signals corresponding to signals for causing said patient's eye muscles to be stimulated.

36. (Original) The apparatus of claim 24 wherein said video processor additional comprises a neural stimulator means for outputting a neural output signal to signal the patient's brain that the selected pixels in each subset have been altered.

37. (Original) The apparatus of claim 24 additionally comprising:
a patient input device coupled to said video processor; and wherein
said video processor periodically alters the selected pixels in each subset according to an input from said patient input device.

38. (Original) The apparatus of claim 37 wherein said video processor additionally alters the magnitude of the subset alteration according to an input from said patient input device.

39. (Original) The apparatus of claim 24 wherein said video processor additionally alters the magnitude of the subset alteration according to data within at least one of said pixel subsets.

40. (Original) The apparatus of claim 24 additionally comprising:
a patient input device coupled to said video processor; and wherein
said video processor selects said pixel subsets and alters its processing criteria according to an input from said patient input device.

41. (Original) The apparatus of claim 24 wherein said video processor and said display driver work in combination to periodically alter output pixel values to neighboring output pixels in said low resolution device, whereby a virtual output pixel may be perceived between physical locations of said neighboring output pixels.

42. (Original) The apparatus of claim 24 wherein criteria for said video processor processing said selected subsets are periodically altered.

43. (Original) The apparatus of claim 24 additionally comprising:

a patient input device coupled to said video processor; and wherein

criteria for said video processor processing said selected subsets are periodically altered according to inputs from said patient input device.

44. (Original) The apparatus of claim 24 wherein said video processor includes at least one transformation filter.

45. (Original) The apparatus of claim 44 wherein said transformation filters are selected from the set of object recognition filters, saccadic filters, image stabilization filters, histogram filers, contrast and brightness filters, edge enhancement filters, repositioning filters, image cropping filters, image zoom filters, image resizing filters, image subsetting filters, electrode stimulation filters, and motion detections filters.

46. (Original) The apparatus of claim 24 wherein said video processor varies the range of input pixel values.

47. (Original) The apparatus of claim 46 wherein said video processor varies the range of processed input pixel values to perform an automatic gain control function.

48. (Original) An apparatus for providing vision to a visually-impaired patient, said apparatus comprising:

a high resolution optical input device for receiving an optical signal and providing a video signal in response thereto;

a video processor for receiving said video signal as an array of pixels, wherein said video processor selects subsets of said input pixels and processes said selected subsets to determine an output pixel value for each said selected subset and wherein said pixels that are selected to form said subsets are periodically altered;

an array of electrodes configured for implantation proximate to the retina of the visually-impaired patient, wherein said electrodes respond to electrical signals for stimulating neural pathways at the patient's retina to generate a pixelated image; said pixelated image having a resolution of no more than one fourth of the image resolution available from said high resolution optical input device; and

a display driver providing electrical signals for driving said array of electrodes in response to said processed pixel values from said video processor.

49. (Original) The apparatus of claim 48 wherein said high resolution video input device is a video camera that has at least 10,000 pixels of resolution.

50. (Original) The apparatus of claim 48 wherein said high resolution video input device outputs a video signal having at least 10,000 pixels of resolution.

51. (Original) The apparatus of claim 48 wherein said video processor periodically alters the selected pixels in each subset according to a fixed alteration pattern.

52. (Original) The apparatus of claim 48 wherein said video processor periodically alters the selected pixels in each subset according to a pseudo-random alteration pattern.

53. (Original) The apparatus of claim 48 additionally comprising:

means for sensing movement of the patient's eye to generate an eye movement signal; and wherein

said video processor periodically alters the selected pixels in each subset in synchronization with said sensed eye movement signal.

54. (Original) The apparatus of claim 48 additionally comprising:

means for sensing movement of a patient's eye; and wherein

said video processor periodically alters the selected pixels in each subset according to said sensed eye movement.

55. (Original) The apparatus of claim 48 additionally wherein said video processor additional comprising means for outputting a neural output signal to signal the patient's brain that the selected pixels in each subset have been altered.

56. (Original) The apparatus of claim 48 additionally comprising:

a patient input device coupled to said video processor; and wherein

said video processor periodically alters the selected pixels in each subset according to an input from said patient input device.

57. (Original) The apparatus of claim 56 wherein said video processor additionally alters the magnitude of the subset alteration according to an input from said patient input device.

58. (Original) The apparatus of claim 48 wherein said video processor additionally alters the magnitude of the subset alteration according to data within at least one of said pixel subsets.

59. (Original) The apparatus of claim 48 additionally comprising:

a patient input device coupled to said video processor; and wherein

said video processor selects said pixel subsets and alters its processing criteria according to an input from said patient input device.

60. (Original) The apparatus of claim 48 wherein said video processor and said display driver work in combination to periodically alter output pixel values to neighboring output electrodes in said electrode array, whereby a virtual output pixel may be perceived between physical locations of said neighboring output pixels.

61. (Original) The apparatus of claim 48 wherein criteria for said video processor processing said selected subsets are periodically altered.

62. (Original) The apparatus of claim 48 additionally comprising:
a patient input device coupled to said video processor; and wherein

criteria for said video processor processing said selected subsets are periodically altered according to inputs from said patient input device.

63. (Original) The apparatus of claim 48 wherein said video processor includes at least one transformation filter.

64. (Original) The apparatus of claim 63 wherein said transformation filters are selected from the set of object recognition filters, saccadic filters, image stabilization filters, histogram filers, contrast and brightness filters, edge enhancement filters, repositioning filters, image cropping filters, image zoom filters, image resizing filters, image subsetting filters, electrode stimulation filters, and motion detections filters.

65. (Original) The apparatus of claim 63 wherein at least one transformation filter in said video processor operates on said video signal.

66. (Original) The apparatus of claim 48 wherein at least one transformation filter in said video processor operates on said selected subsets of said input pixels.

67. (Original) The apparatus of claim 48 wherein said video processor varies the range of input pixel values.

68. (Original) The apparatus of claim 67 wherein said video processor varies the range of processed input pixel values to perform an automatic gain control function.

69. (Withdrawn) A method for increasing the perceived visual acuity between a high resolution video input device and a low resolution retinal prosthesis comprised at least in part of an array of stimulation electrodes, wherein said high resolution device inputs an image of higher resolution than the number stimulation electrodes in said retinal prosthesis, said method comprising the steps of:

inputting a high resolution video input as an array of pixels;

associating a subset of at least one input pixel with each stimulation electrode;

periodically driving each stimulation electrode with a signal corresponding to its at least one associated input pixel; and

periodically driving pairs of neighboring electrodes with signals associated with at least one input pixel to generate virtual electrode signals at locations physically displaced from said stimulation electrodes, whereby the perceived visual acuity is increased.

70. (Withdrawn) The method of claim 69 wherein said periodically driving pairs of neighboring electrodes step generates virtual electrode signals at physical locations in-between said stimulation electrodes.

71. (Withdrawn) The method of claim 69 wherein said associating step additionally comprises the step of periodically altering said subset of input pixels.

72. (Withdrawn) The method of claim 71 wherein the step of periodically altering the pixels in each subset is done according to a fixed alteration pattern.

73. (Withdrawn) The method of claim 71 wherein the step of periodically altering the pixels in each subset is done according to a pseudo-random alteration pattern.

74. (Withdrawn) The method of claim 71 wherein the step of periodically altering the pixels in each subset is done according to sensed eye movement.

75. (Withdrawn) The method of claim 71 wherein the step of periodically altering the select pixels in each subset is done in synchronization with a sensed eye movement signal.

76. (Withdrawn) The method of claim 71 additionally comprising the step of outputting a neural output signal to signal to the patient's brain that the pixels in each subset have been altered.

77. (Withdrawn) The method of claim 71 wherein the step of periodically altering the pixels in each subset is done according to a patient selectable input.

78. (Withdrawn) The method of claim 71 wherein the step of periodically altering the pixels in each subset additionally comprises altering the magnitude of the subset alteration according to a patient selectable input.

79. (Withdrawn) The method of claim 71 wherein the step of periodically altering the pixels in each subset additionally comprises altering the magnitude of the subset alteration according to data within at least one of said pixel subsets.

80. (Original) An apparatus for providing vision to a visually-impaired patient, said apparatus comprising:

a high resolution optical input device for receiving an optical signal and providing a video signal in response thereto;

a video processor for receiving said video signal as an array of pixels, wherein said video processor selects subsets of said input pixels and processes said selected subsets to determine an output pixel value for each said selected subset and wherein said pixels that are selected to form said subsets are periodically altered;

an array of electrodes configured for implantation proximate to the retina of the visually-impaired patient, wherein said electrodes respond to electrical signals for stimulating neural pathways at the patient's retina to generate a pixelated image; said pixelated image having a resolution of no more than one fourth of the image resolution available from said high resolution optical input device;

a display driver providing electrical signals for driving said array of electrodes in response to said processed pixel values from said video processor; and wherein

said video processor includes at least one transformation filter selected from the set of object recognition filters, saccadic filters, image stabilization filters, histogram filers, contrast and brightness filters, edge enhancement filters, repositioning filters, image cropping filters, image zoom filters, image resizing filters, image subsetting filters, electrode stimulation filters, and motion detections filters.

81. (Original) The apparatus of claim 80 wherein said high resolution video input device is a video camera that has at least 10,000 pixels of resolution.

82. (Original) The apparatus of claim 80 wherein said high resolution video input device outputs a video signal having at least 10,000 pixels of resolution.

83. (Original) The apparatus of claim 80 wherein said video processor periodically alters the selected pixels in each subset.

84. (Original) The apparatus of claim 83 wherein said video processor periodically alters the selected pixels in each subset according to a fixed alteration pattern.

85. (Original) The apparatus of claim 83 wherein said video processor periodically alters the selected pixels in each subset according to a pseudo-random alteration pattern.

86. (Original) The apparatus of claim 83 additionally comprising:

means for sensing movement of the patient's eye to generate an eye movement signal; and wherein

said video processor periodically alters the selected pixels in each subset in synchronization with said sensed eye movement signal.

87. (Original) The apparatus of claim 83 additionally comprising:

means for sensing movement of a patient's eye; and wherein

said video processor periodically alters the selected pixels in each subset according to said sensed eye movement.

88. (Original) The apparatus of claim 83 additionally wherein said video processor additional comprising means for outputting a neural output signal to signal the patient's brain that the selected pixels in each subset have been altered.

89. (Original) The apparatus of claim 83 additionally comprising:
a patient input device coupled to said video processor; and wherein
said video processor periodically alters the selected pixels in each subset according to an input from said patient input device.

90. (Original) The apparatus of claim 83 wherein said video processor additionally alters the magnitude of the subset alteration according to an input from said patient input device.

91. (Original) The apparatus of claim 83 wherein said video processor additionally alters the magnitude of the subset alteration according to data within at least one of said pixel subsets.

92. (Original) The apparatus of claim 80 additionally comprising:
a patient input device coupled to said video processor; and wherein
said video processor selects said pixel subsets and alters its processing criteria according to an input from said patient input device.

93. (Original) The apparatus of claim 83 wherein said video processor and said display driver work in combination to periodically alter output pixel values to neighboring output electrodes in said electrode array, whereby a virtual output pixel may be perceived between physical locations of said neighboring output pixels.

94. (Original) The apparatus of claim 80 wherein criteria for said video processor processing said selected subsets are periodically altered.

95. (Original) The apparatus of claim 80 additionally comprising:

a patient input device coupled to said video processor; and wherein

criteria for said video processor processing said selected subsets are periodically altered according to inputs from said patient input device.